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10/583,381	06/18/2007	Timo Varpula	43289-232639	3135

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EXAMINER

BALDRIDGE, BENJAMIN M

ART UNIT	PAPER NUMBER
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2831

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/583,381	Applicant(s) VARPULA ET AL.	
	Examiner Benjamin M. Baldrige	Art Unit 2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 43 is/are pending in the application.
- 4a) Of the above claim(s) 1 - 22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23 - 31, 34 - 41 is/are rejected.
- 7) ☒ Claim(s) 32 - 33, 42 - 43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>23 July 2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1 – 22 are cancelled; claims 23 – 43 are presented for examination.

Specification

2. The disclosure is objected to because of the following informalities:

Page 4, line 5, Page 5, line 31, Page 6, lines 5, 7, 37, Page 7, line 12: the term "alternate" is used to describe a magnetic or electric field. For the purposes of examination, the term "alternate" in this context will be read as "alternating", which is the commonly accepted term to describe a symmetrical time varying field whose average phase is zero over a period.

Page 6, line 16: the phrase "at resonance frequency and round about it" is unclear. For the purposes of examination, the phrase will be read as "at or near resonance frequency".

Page 7, line 6: the phrase "which is of same insulating material" is unclear, as no previous indication is made suggesting what the insulating material might be. For the purposes of examination, the phrase will be read as "which is of some insulating material".

Appropriate correction is required.

3. The specification is objected to because it lacks the required section headings, as explained in the guidelines for arrangement of the specification below:

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

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As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 23 – 25, 29- 31, 39 – 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Smolander et al. (US Patent Application Publication Pub. No. US 2007/0176773, Pub. Date August 2, 2007, hereinafter referred to as Smolander).

The applied reference has common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under

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35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to claim 23, Smolander discloses an RFID food spoilage sensor for packaged food and drugs including:

A sensor arrangement remotely readable by radio frequencies for determining desired quantities from sources ([0037], lines 1 – 5; note also title of Smolander publication);

A LC resonator which comprises a capacitor and a coil (Figure 3, items 24, 5, 21; note that resonator is used to interrogate the sensor);

A sensor element coupled to the LC resonator, whose properties change as a function of a measurable quantity (Figure 3, items 22, 12, 14, 13; note magnetic coupling M between items 13 of the sensor and item 5 of the LC resonator. Note also that the sensor element 12 is a resistance that changes in response to presence of decay products in a food or drug package, as disclosed in [0035], lines 6 - 11 of Smolander);

The sensor element being coupled with the LC resonator without forming a direct galvanic contact ([0035], lines 6 – 11; also Figure 3, items 22, 12, 14, 13; note magnetic coupling M between items 13 of the sensor and item 5 of the LC resonator).

As to claims 24 – 25, 29 – 31, Smolander discloses:

The sensor element is cumulatively variable [claim 24] (Figure 1, item 12; [0035], lines 11 – 19; [0039], lines 8 – 11);

The sensor arrangement is suitable for use in monitoring deterioration of foodstuffs and medicinal substances [claim 25] ([0020], lines 3 - 11; [0039], lines 5 - 11);

The sensor element is adapted to couple inductively to the LC resonator [claim 29] (Figure 3, items 5, 13, 22, 24 - note magnetic coupling between item 13 in the sensor and item 5 in the interrogator, shown with arrow as item M).

The inductively coupleable sensor element is disposed in the middle of the coil [claim 30] (Figure 2a, items 13, 14; note that the resistive element is disposed in the

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middle of the planar spiral inductor, which is taken to be the coil recited in the instant claim);

The inductively couplable sensor element is disposed alone inside the package [claim 31] ([0039], lines 5 – 11; the term "disposed alone inside the package" is taken to mean that no other sensor element (i.e. the resistive element shown as item 12 in Figure 3) is included in the package of foodstuff or medicinal substances).

As to claims 39 – 41, Smolander discloses:

A sensor arrangement remotely readable by radio frequencies for determining desired quantities from sources [claim 39] ([0037], lines 1 – 5; note also title of Smolander publication);

A LC resonator which comprises a capacitor and a coil [claim 39] (Figure 3, items 24, 5, 21; note that resonator is used to interrogate the sensor);

A sensor element coupled to the LC resonator, whose properties change as a function of a measurable quantity [claim 39] (Figure 3, items 22, 12, 14, 13; note magnetic coupling M between items 13 of the sensor and item 5 of the LC resonator. Note also that the sensor element 12 is a resistance that changes in response to presence of decay products in a food or drug package, as disclosed in [0035], lines 6 - 11 of Smolander);

The sensor element being coupled with the LC resonator inductively [claim 39] ([0035], lines 6 – 11; also Figure 3, items 22, 12, 14, 13; note magnetic coupling M between items 13 of the sensor and item 5 of the LC resonator)..

The inductively couplable sensor element is disposed in the middle of the coil [claim 39] (Figure 2a, items 13, 14; note that the resistive element is disposed in the middle of the planar spiral inductor, which is taken to be the coil recited in the instant claim);

The inductively couplable sensor element is disposed alone inside the package [claim 39] ([0039], lines 5 – 11; the term "disposed alone inside the package" is taken to mean that no other sensor element (i.e. the resistive element shown as item 12 in Figure 3) is included in the package of foodstuff or medicinal substances).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 26 – 28, 34 – 38 are rejected under 35 U.S.C. 103(a) as being obvious over Smolander in view of Maloney (US Patent 6,204,764 B1, March 20, 2001, hereinafter referred to as Maloney).

The applied reference (Smolander) has common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention “by another”; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

As to claim 26, Smolander discloses a device as stated above in paragraph 4.

Smolander fails to disclose:

The sensor element is adapted to couple capacitively to the LC circuit.

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Maloney discloses:

The sensor element is adapted to couple capacitively to the LC circuit (Abstract, lines 12 – 15; Column 3, lines 64 – 67. Note that Maloney explicitly discloses use of a sensor using capacitive coupling. Note also that capacitive coupling is the electrostatic analogue of magnetic (inductive) coupling, and as such, its use would have been obvious to a person of ordinary skill in the art as an obvious modification of the apparatus disclosed by Smolander);

Given the teaching of Maloney, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the method of Smolander by employing well known or conventional features such as capacitively coupling to a sensor element, as disclosed by Maloney, in order to detect decay products or other indications of lessened quality in food products or medicinal substances.

As to claims 27 and 28, Smolander discloses:

The capacitively couplable sensor element is disposed on top of the coil (Figure 2a, items 13, 14; note that the resistive element is disposed in the middle of the planar spiral inductor, which is taken to be the coil recited in the instant claim);

The capacitively couplable sensor element is disposed alone inside the package ([0039], lines 5 – 11; the term "disposed alone inside the package" is taken to mean that no other sensor element (i.e. the resistive element shown as item 12 in Figure 3) is included in the package of foodstuff or medicinal substances).

As to claim 34, Smolander discloses a device as stated above in paragraph 4.

Smolander discloses:

A sensor arrangement remotely readable by radio frequencies for determining desired quantities from sources ([0037], lines 1 – 5; note also title of Smolander publication);

A LC resonator which comprises a capacitor and a coil (Figure 3, items 24, 5, 21; note that resonator is used to interrogate the sensor);

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A sensor element coupled to the LC resonator, whose properties change as a function of a measurable quantity (Figure 3, items 22, 12, 14, 13; note magnetic coupling M between items 13 of the sensor and item 5 of the LC resonator. Note also that the sensor element 12 is a resistance that changes in response to presence of decay products in a food or drug package, as disclosed in [0035], lines 6 - 11 of Smolander).

Smolander fails to disclose:

The sensor element being coupled with the LC resonator capacitively.

Maloney discloses:

The sensor element being coupled with the LC resonator capacitively (Abstract, lines 12 – 15; Column 3, lines 64 – 67. Note that Maloney explicitly discloses use of a sensor using capacitive coupling. Note also that capacitive coupling is the electrostatic analogue of magnetic (inductive) coupling, and as such, its use would have been obvious to a person of ordinary skill in the art as an obvious modification of the apparatus disclosed by Smolander).

Given the teaching of Maloney, a person of ordinary skill in the art would have readily recognized the desirability and advantages of modifying the method of Smolander by employing well known or conventional features such as capacitively coupling to a sensor element, as disclosed by Maloney, in order to detect decay products or other conditions indicating diminished quality in food products or medicinal substances.

As to claims 35 – 38, Smolander discloses:

The sensor element is cumulatively variable [claim 35] (Figure 1, item 12; [0035], lines 11 – 19; [0039], lines 8 – 11);

The sensor arrangement is suitable for use in monitoring deterioration of foodstuffs and medicinal substances [claim 36] ([0020], lines 3 - 11; [0039], lines 5 - 11);

The capacitively couplable sensor element is disposed on top of the coil [claim 37] (Figure 2b, items 12, 13, 14; Figure 2c, items 14; note that the sensor element item 12 is on an opposite side of the substrate from the spiral inductor 13, which is on top of the coil if the substrate is oriented as in Figure 2c);

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The capacitively couplable sensor element is disposed alone inside the package [claim 38] ([0039], lines 5 – 11; the term "disposed alone inside the package" is taken to mean that no other sensor element (i.e. the resistive element shown as item 12 in Figure 3) is included in the package of foodstuff or medicinal substances).

Allowable Subject Matter

7. Claims 32 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest, singly or in combination, a sensor arrangement remotely readable by radio frequencies for determining desired quantities from sources, wherein

The inductively couplable sensor element is disposed inside an electrically conductive ring which is thicker than the sensor element

as in claims 32 and 42.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin M. Baldrige whose telephone number is 571 270 1476. The examiner can normally be reached on Monday through Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571 272 2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Gutierrez/
Supervisory Patent Examiner, Art Unit 2831

/Benjamin M Baldrige/
Examiner, Art Unit 2831